ON A COCCID INJURIOUS TO PINE TREES IN THE HIMALAYAS.

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(Plate XVII.)

Ripersia resinophila, sp. nov.

Adult female (as observed in specimens preserved in alcohol) broadly oval (fig. 1, *b*, *c*), strongly convex (fig. 1, *a*), circular under compression; divisions of segments

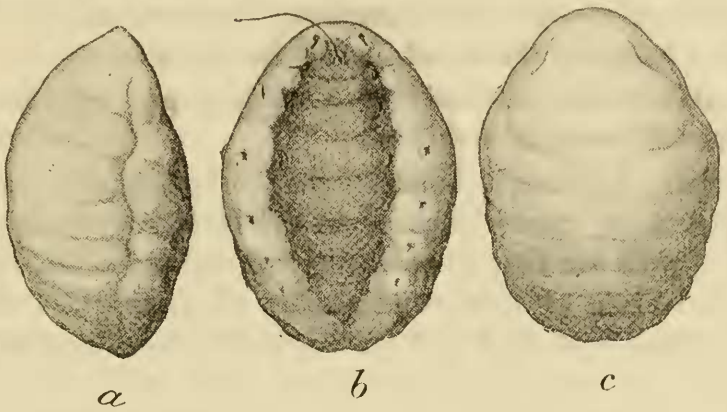

Fig. 1. Adult female of *Ripersia resinophila*, Green, sp. n., × 9; *a*, lateral view; *b*, ventral view; *c*, dorsal view.

indicated on the dorsum by moderately deep transverse furrows: marginal area tumescent, overlapping the ventral area (fig. 1, *b*). Colour (of alcoholic material) ochreous, brownish, or olivaceous, very thinly powdered with white mealy secretion.

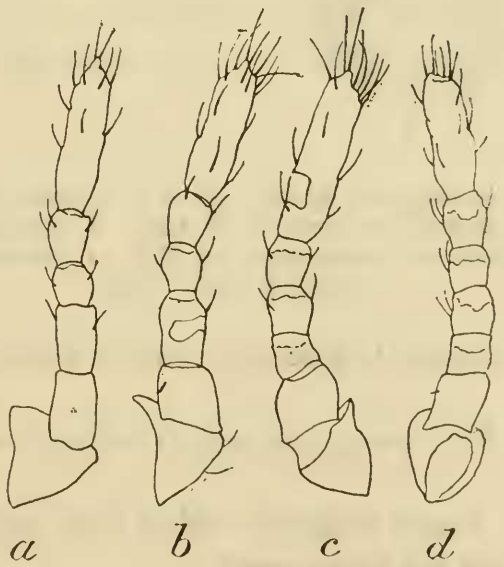

Fig. 2. Antennae of *Ripersia resinophila*, × 210; *a*, normal 6-jointed form; *b*, *c*, intermediate forms; *d*, 7-jointed form.

Antennae very small: 6- or 7-jointed (fig. 2, *a*, *d*), with intermediate forms showing incomplete division of the 3rd (fig. 2, *b*) or of the 6th (fig. 2, *c*). Antennal formula of normal 6-jointed form, 6, 2, 3, 5, 4, the 6th twice as long as the 2nd. In the 7-jointed

form joints 3, 4, 5 and 6 are approximately equal. Legs very small and feeble: tarsus approximately equal to tibia (fig. 3, *a*): digitules filiform, minutely knobbed at extremity. No anal lobes, the posterior extremity evenly rounded. Anal ring fig. 3, *b*) circular or oblate, bearing six short and inconspicuous setae united by a chain of ceriferous pores. Derm with small and inconspicuous circular pores, on the posterior segments only. Diameter of fully matured examples 3·50 to 4·0 mm.

Early adult female (containing developing embryos) very much smaller, scarcely one-eighth the size of fully matured individuals: longer diameter 1·50 mm. At this stage the insect is subspherical in outline, the anterior extremity produced into a blunt point. The junctions of the abdominal segments, in these younger females, are often marked by series of irregular thickened ingrowths of the derm.

I have been unable to recognise the true nymphal stage. All the smaller examples examined contained developing embryos.

Larva oblong oval. Antenna 6-jointed: the joints rather contracted in the newly hatched insect (fig. 3, *c*), more elongated in the later larvae (fig. 3, *d*). Posterior extremity (fig. 3, *e*) with the anal lobes scarcely prominent: their position indicated by short setae. Anal ring with six slender setae which are relatively longer than in the adult insect. Derm with scattered circular pores and very short hairs.

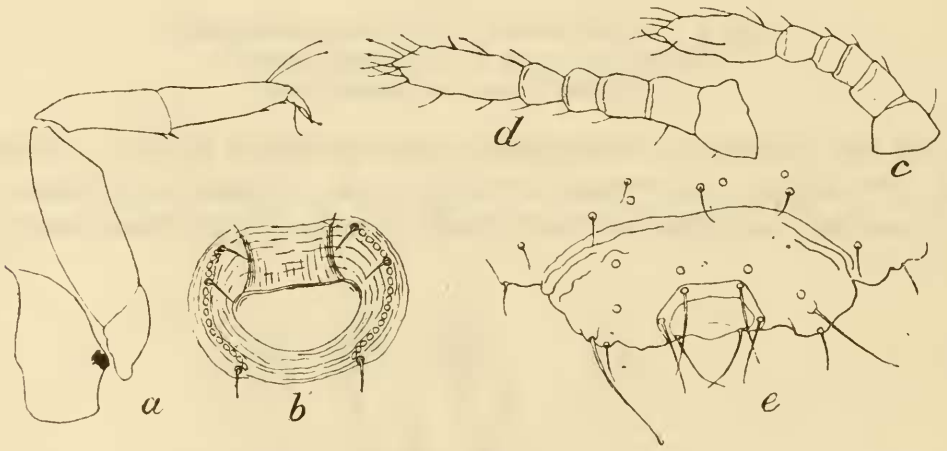

Fig. 3. *Ripersia resinophila*, Green, sp. n.; *a*, anterior limb of adult ♀, × 210; *b*, anal aperture of adult ♀, × 450; *c*, antenna of young larva, × 210; *d*, antenna of older larva, × 210; *e*, posterior extremity of young larva, × 375.

On *Pinus longifolia*, Kumaon Himalayas; and on *Pinus excelsa*, Kamraj Division, Kashmir.

The living insect is said to occupy gummy (? resinous) cells on growing shoots of the plant.

Mr. C. F. C. Beeson, Forest Zoologist, Dehra Dun, supplies the following notes descriptive of the colour of the living insect:—

"Colour of adult female, during gestation, reddish ochreous, with a smooth glossy surface. After extrusion of the eggs the colour passes to reddish brown and finally to brownish purple, the surface becoming dull and wrinkled.

"Colour of egg lemon yellow; surface 'matt,' owing to closely adherent white mealy powder.

" Newly emerged larva also yellow, soon changing to pale pink. On leaving the female cell and settling on the needles the larvae are pale salmon pink, and covered with a white waxy powder."

Dr. A. D. Imms, who had personal experience of the insect in India, adds the following observations :—

" My attention was first called to the insect by Mr. C. M. McCrie, a forest officer, who noted it at Binsar. It attacks young plants up to about 8 feet high mostly. It is a very destructive insect and the adult female is coated externally with a thick gummy investment extremely like—in colour and appearance—to gum arabic. The young Coccids on hatching at first crawl up the twigs and ensconce themselves between the pine needles and feed thereon, and for that reason are hard to find. Later on they settle down on the growing twigs themselves. In wet weather the gummy covering of the insect becomes soft and sticky, and a fungus germinates readily on it and produces a black appearance which at first sight appears to belong to the Coccid. I found it very abundant at Takula, Binsar, Bhowali and Ramgarh (all in Kumaon) at elevations of 4,000 to 5,800 feet. It appears to be commonest on hot sunny hill-sides. Badly affected trees grow very little in height, only in thickness. It is not, however, absolutely confined to young plants; I have had branches cut off large trees at a distance of 50 feet from the ground, and found the scale thereon, but not plentifully. It is much attacked by Coccinellidae and parasitic Hymenoptera, and ants swarm on badly affected trees."

It is not clear whether the " gummy cells " are secreted by the insect or whether they are composed of an exudation from the plant. I have not examined these cells, specimens sent from India having been lost in transit. The derm of the adult insect displays no special glands such as might be expected if the gummy matter were produced by the creature itself.

I place the species in the genus *Ripersia* with some hesitation. The characters are not exactly typical, but agree more nearly with those of this than of the allied genus *Pseudococcus*.